SSC Charleston – First SPAWAR Systems Center to Achieve CMMI® Maturity Level 2

By SSC Charleston Engineering Process Office

Achieving CMMI Maturity Level 2 for the command reinforces SSC Charleston's standing as a quality provider of systems engineering, software engineering and information technology services …

Introduction

The Space and Naval Warfare (SPAWAR) Systems Center (SSC) Charleston successfully completed phase one of its process improvement effort by achieving Capability Maturity Model Integration (CMMI®) Maturity Level 2. This achievement is a milestone not only for SSC Charleston, but for the entire SPAWAR claimancy because Charleston is the first systems center within SPAWAR to attain CMMI Maturity Level 2.

In April 2005, Richard Barbour, a senior member of the technical staff of the Software Engineering Institute (SEI), led an appraisal team that evaluated SSC Charleston processes. The results revealed that SSC Charleston had implemented the best government, industry and academic practices, reflected in the SEI's CMMI model for Systems Engineering and Software Engineering (CMMI®-SE/SW), attaining command-level CMMI Maturity Level 2.

In Pursuit of Excellence

SSC Charleston has been actively pursuing process improvement efforts since 1998 and reaffirmed this commitment in 2003 with a command-wide Process Improvement Policy. The policy directs the use of best practices from the CMMI-SE/SW model for SSC Charleston systems and software engineering projects and tasks.

The command chose to implement the CMMI because it provides a structured

Michael T. Kutch, Jr., director of Engineering Operations, SSC Charleston.

model for process improvement and is used to measure and improve an organization's ability to successfully manage complex projects. The model recognizes excellence in business practices, measured against a set of demanding criteria.

The SEI has reported quantitative evidence showing how CMMI-based process improvement can result in improvements in cost, schedule, quality, customer satisfaction and return on investment. Government agencies and private industry increasingly use the CMMI model to evaluate an organization's ability to produce high-quality products on time and within budget.

James Ward, executive director of SSC Charleston, credited much of the CMMI Maturity Level 2 success to Michael T. Kutch Jr., director of Engineering Operations (Code 09K).

… [Mr. Kutch] "developed the process improvement strategy, the process improvement plan and the process improvement program. He sponsored training and an organizational infrastructure … Mike executed his plans to perfection and achieved CMMI Maturity Level 2 on time, in accordance with the schedule he provided in February 2004," said Ward.

SSC Charleston's process improvement strategy is in line with its systems engineering revitalization efforts, all of which focus on having sound processes and practices. Since SSC Charleston designs, acquires, engineers and supports technology-based systems, products and services for the warfighter, instituting a superior engineering capability is critical to the command's mission.

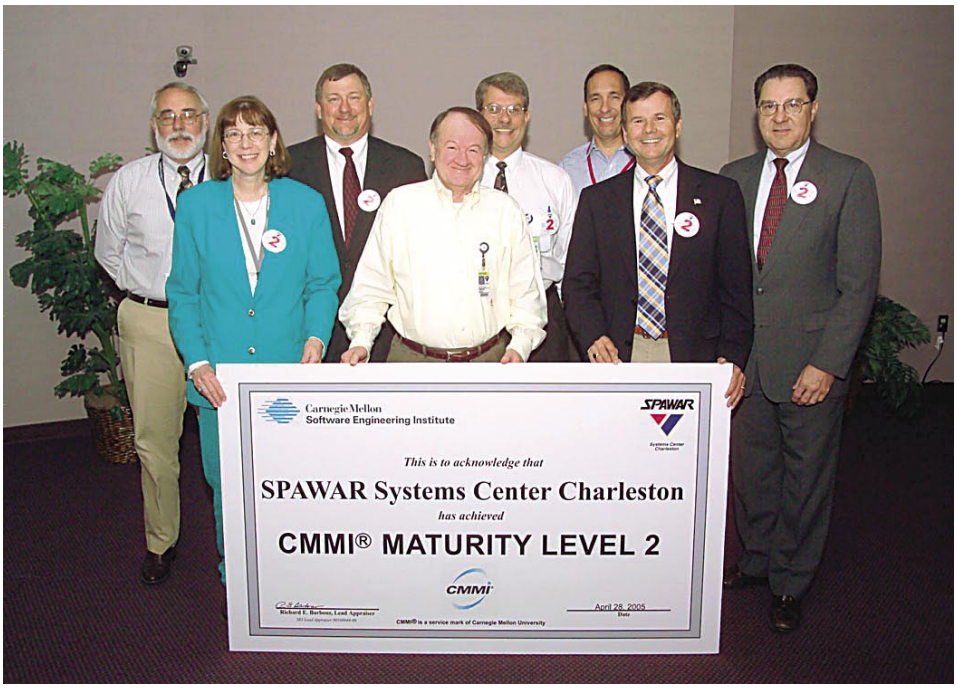
Institutionalizing Excellence

SSC Charleston designed an aggressive systems engineering program. The program includes applying key industry standards and best practices to improve both systems and software engineering processes.

Industry standards, such as the ISO/IEC 15288 systems engineering standard and the ISO/IEC 12207, which addresses software life cycle processes are the common overarching directives for all systems and software engineering projects. In addition to the CMMI, SSC Charleston applies other industry best practices including ISO 9001 and Lean Six Sigma.

Another key focus of the systems engineering program includes increasing the knowledge and skills of SSC Charleston's most competitive advantage — its employees. Engineering Operations provided SEI-authorized training for the SEI's "Introduction to CMMI" course to teach personnel how to apply the principles of the CMMI model to their respective projects.

To offer process improvement training to more employees, the department developed a self-paced online tutorial called, Process Improvement Web-Based Training (PI-WBT). Students receive a certificate upon course completion. At this time, nearly half of SSC Charleston's 2,300 employees have received process improvement training.



SSC Charleston has been actively pursuing process improvement efforts since 1998 and reaffirmed this commitment in 2003 with a command-wide Process Improvement Policy. In April 2005, SSC Charleston attained command-level CMMI Maturity Level 2.

Back row, left to right: Francis Allston, deputy director for Transformation and Michael T. Kutch Jr., director, Engineering Operations, with SSC Charleston Board of Directors members: Kevin McGee, head, Command and Control Systems Department; William Paggi, head, Contracts Office; Jerry Koenig, head, Intelligence and Information Warfare Systems Engineering Department; front row, left to right: Georgia Lack, deputy chief of staff; Freddie Hicks, head, Comptroller Office; and James Ward, executive director, SSC Charleston.

In addition to providing vital process improvement training, the engineering operations department is offering the Systems Engineering Fundamentals course to both new and senior engineers.

This course continues to receive rave reviews from students because the material introduces key process concepts to new engineers and provides refresher training for senior engineers. So far, 120 employees have taken the training and additional courses are planned through 2006. Currently, SSC Charleston is preparing the Fundamentals of Software Development course.

Planning for Success

The process improvement strategy includes creating an Engineering Process Office (EPO) to provide process improvement guidance and CMMI implementation support to personnel. For example, the EPO developed sample documents, document templates and standard operating procedures (SOPs). The EPO also developed a software tool, called the electronic plan builder (EPB), an application that guides users through the process of creating project plans that are CMMI-compliant.

To help drive the process improvement effort, SSC Charleston created a Corporate Engineering Process Group (EPG). At the department level, EPGs were created to execute the process improvement effort within each department. SSC Charleston also formed several CMMI-related Integrated Product Teams (IPTs) as process area owners.

SSC Charleston's journey toward CMMI Maturity Level 2 began by implementing the model in a number of projects, which were selected by various department and division heads. To assess compliance with the CMMI model, the EPO performed mini-assessments to benchmark progress toward the attainment of Maturity Level 2 for their respective projects and for the overall command.

SSC Charleston's first successful CMMI project was the Common Information Centric Security project, which underwent a formal appraisal and achieved CMMI Maturity Level 2 in June 2004. Since that time, additional SSC Charleston projects have been formally appraised.

During the two-week (April 18-28, 2005) command-level appraisal, the appraisal team reviewed and evaluated process documentation and supporting artifacts. The appraisal team also interviewed personnel concerning CMMI implementation for their projects.

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"As a result of this historic achievement, our customers will reap multiple benefits. Empirical data from the SEI indicates that our customers can expect improved productivity, reduced defects, decreased cycle time, and delivery of products on time and within budget …," said Ward.

The Next Step

SSC Charleston is well on the way to reaching its goal of becoming a world-class systems engineering organization. The next phase in SSC Charleston's process improvement effort is to achieve CMMI Maturity Level 3. CHIPS